AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listing of claims in the application.

Claim 1 (currently amended): A polynucleotide which specifically binds to a target nucleic acid molecule and circularizes as a result of the said target binding ~~around said target~~, wherein said polynucleotide comprises:

a target binding sequence which is at least partially complementary and capable of binding to a sequence of the target; ~~and~~

a catalytic domain which is capable of catalytic activity~~, wherein said catalytic activity is inhibited in the absence of binding of the polynucleotide to the target.~~; and

a regulatory nucleic acid sequence which binds to at least a portion of the target binding sequence, wherein said regulatory sequence inhibits catalytic activity in the absence of binding between the target binding sequence and the target molecule.

Claim 2 (original): A polynucleotide according to claim 1, wherein said catalytic activity catalyzes said circularization of the polynucleotide around the target

Claim 3 (original): A polynucleotide according to claim 2, wherein said catalytic activity is a ligase activity.

Claim 4 (original): A polynucleotide according to claim 3, wherein said ligase activity comprises ligation of 5' and 3' ends of said polynucleotide to topologically link the polynucleotide to the target.

Claim 5 (original): A polynucleotide according to claim 3, wherein said ligase activity comprises ligation of the 5' end of said polynucleotide to the 2' hydroxyl group of an internal nucleotide of said polynucleotide.

Claim 6 (original): A polynucleotide according to claim 3, wherein said catalytic domain is the catalytic domain of a hairpin ribozyme.

Claim 7 (original): A polynucleotide according to claim 1, wherein said catalytic domain comprises ribonucleotide residues or analogs thereof.

Claim 8 (original): A polynucleotide according to claim 1, wherein said catalytic domain comprises deoxyribonucleotide residues or analogs thereof.

Claim 9 (original): A polynucleotide according to claim 1, wherein said catalytic domain comprises both ribonucleotide and deoxyribonucleotide residues, or analogs thereof.

Claim 10 (currently amended): A polynucleotide according to claim 1, wherein the inhibition of said catalytic activity ~~is effected by a regulatory nucleic acid sequence which binds to at least a portion of the target binding sequence, thereby preventing~~ prevents circularization of said polynucleotide ~~when the target binding sequence is not bound to the target~~.

Claim 11 (original): A polynucleotide according to claim 1, wherein said target comprises RNA.

Claim 12 (original): A polynucleotide according to claim 1, wherein said target comprises DNA.

Claim 13 (original): A polynucleotide according to claim 1, wherein said polynucleotide is prepared synthetically.

Claim 14 (original): A polynucleotide according to claim 1, wherein said polynucleotide is prepared by expression from an expression vector.

Claim 15 (original): A polynucleotide according to claim 14, wherein said expression occurs in vitro.

Claims 16-17 (canceled)

Claim 18 (original): A complex comprising a polynucleotide according to claim 1 circularized around said target molecule.

Claims 19-21 (canceled)

Claim 22 (withdrawn): A method for detecting presence or absence of a target nucleic acid molecule, said method comprising contacting a composition suspected of containing said target with a polynucleotide according to claim 1 and detecting circularization of the polynucleotide around the target, wherein presence of said circularization indicates presence of the target in the composition, if any.

Claim 23 (withdrawn): A method according to claim 22, wherein said target is linked to a solid support.

Claim 24 (withdrawn): A method according to claim 23, wherein said solid support is a hybridization membrane.

Claim 25 (withdrawn): A method according to claim 22, wherein said polynucleotide is comprised within an array.

Claim 26 (withdrawn): A method according to claim 22, wherein said detection comprises amplification of the circularized polynucleotide.

Claim 27 (withdrawn): A method according to claim 26, where said amplification comprises rolling circle amplification.

Claim 28 (withdrawn): A method according to claim 22, wherein said polynucleotide comprises a detectable label and said detection comprises detection of the label bound to the target.

Claim 29 (withdrawn): A method according to claim 28, wherein said label is selected from the group consisting of radioactive, fluorescent, hapten, or enzymatic labels, or a member of a binding pair.

Claims 30-33 (canceled)